Medical DVD Recorder

MP-6000MD

Instruction Manual

REV 021205

Table of contents

Warnings and Precautions ---- 3

Mains Lead (Europe / UK) ---- 4

Warranty ---- 5

Disposal ---- 5

What is in the package ---- 6

Introduction ---- 6

Applied Parts ---- 6

Symbols ---- 6

Cleaning ---- 7

Features ---- 7

Functions ---- 8

- Front Panel ---- 8
- Rear Panel ---- 11

Installation ---- 13

Quick Start Guide ---- 15

Setting Up ---- 18

- Connecting ---- 18
- Powering Up ---- 18
- On screen display ---- 18
- LCD Display ---- 19
- Setting the Time & Date ---- 20
- Setting the Video Input ---- 24
- Setting the Record Quality ---- 24

Recording a Disc ---- 25

- Inserting a Disc ---- 25
- Recording from an Analogue Source ---- 26
- Recording from a DV IEEE 1394 Source ---- 28

Reviewing a Recording ---------- 29
Finalizing a DVD+R Disc ---------- 30
Finalizing a DVD+RW Disc (Make Compatible) ---------- 32
Editing a Title ---------- 33
Editing a Title Description ---------- 33
Editing a Title Icon ---------- 35
Color Correction ---------- 37
Setting the Video Standard (PAL/NTSC) ---------- 39
GPI Functions ---------- 39
Additional Features of DVD+RW Discs ---------- 41
Formatting a new DVD+RW Disc ---------- 41
Erasing a DVD+RW Disc ---------- 42
Erasing the Last Title from a DVD+RW Disc ---------- 43
Factory Reset (Return to default) ---------- 45
RS 232 Information ---------- 47
Specifications ---------- 48
Service and Support ---------- 49

Warnings and Precautions

1. Read all of these warnings and save them for later reference.
2. Follow all warnings and instructions marked on this unit.
3. Unplug this unit from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a dry or slightly damp cloth for cleaning. **(see Cleaning on page 6)**
4. Do not use this unit in or near water.
5. Do not place this unit on an unstable cart, stand, or table. The unit may fall, causing serious damage.
6. Slots and openings on the cabinet top, back, and bottom are provided for ventilation. To ensure safe and reliable operation of this unit, and to protect it from overheating, do not block or cover these openings. Do not place this unit on a bed, sofa, rug, or similar surface, as the ventilation openings on the bottom of the cabinet will be blocked. This unit should never be placed near or over a heat register or radiator. This unit should not be placed in a built-in installation unless proper ventilation is provided.
7. This product should only be operated from the type of power source indicated on the marking label of the AC adapter, or rear of the unit. If you are not sure of the type of power available, consult your Datavideo dealer or your local power company.
8. Do not allow anything to rest on the power cord. Do not locate this unit where the power cord will be walked on, rolled over, or otherwise stressed.
9. If an extension cord must be used with this unit, make sure that the total of the ampere ratings on the products plugged into the extension cord do not exceed the extension cord's rating.
10. Make sure that the total amperes of all the units that are plugged into a single wall outlet do not exceed 15 amperes.
11. Never push objects of any kind into this unit through the cabinet ventilation slots, as they may touch dangerous voltage points or short out parts that could result in risk of fire or electric shock. Never spill liquid of any kind onto or into this unit.
12. Except as specifically explained elsewhere in this manual, do not attempt to service this product yourself. Opening or removing covers that are marked "Do Not Remove" may expose you to dangerous voltage points or other risks, and will void your warranty. Refer all service issues to qualified service personnel.
13. Unplug this product from the wall outlet and refer to qualified service personnel under the following conditions:
    a. When the power cord is damaged or frayed;
    b. When liquid has spilled into the unit;
    c. When the product has been exposed to rain or water;
    d. When the product does not operate normally under normal operating conditions. Adjust only those controls that are covered by the operating instructions in this manual; improper adjustment of other controls may result in damage to the unit and may often require extensive work by a qualified technician to restore the unit to normal operation;
    e. When the product has been dropped or the cabinet has been damaged;
    f. When the product exhibits a distinct change in performance, indicating a need for service.

AC Mains Leads in Europe

FOR YOUR SAFETY PLEASE READ THE FOLLOWING TEXT CAREFULLY.

In Europe this product may be supplied with 2 types of AC mains cable. One is for continental Europe, etc. and the other one is only for the U.K.

Please make sure that you use the appropriate mains cable for your local area.

UK 3 Pin Type Cable

Continental Europe Type Cable

FOR U.K. ONLY

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.

A 13 amp fuse is fitted in this plug.

Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 13 amps and that it is approved by ASTA or BSI to BS1362. (Look for the ASTA mark or the BSI mark on the body of the fuse.)

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.

If you lose the fuse cover the plug must not be used until a replacement cover is obtained from your local Datavideo Office.

IF THE FITTED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET YOU ARE USING THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY. THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13 AMP SOCKET.

If a new plug is to be fitted please observe the wiring code as shown below.

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured GREEN-AND-YELLOW must be connected to the terminal in the plug which is marked with the letter E or by the Earth symbol or coloured GREEN or GREEN-AND-YELLOW.

The wire which is coloured BLUE must be connected to the terminal in the plug which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED. **If in any doubt please consult a qualified electrician.**

WARNING: THIS APPLIANCE MUST BE EARTHED.

CAUTION:

This unit employs a laser. Due to possible eye injury, only qualified service personnel should remove the cover or attempt to service this device.

Use of controls, adjustments, or the performance of procedures other than those specified herein may result in hazardous radiation exposure.

CAUTION VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN AVOID EXPOSURE TO BEAM (WARNING LOCATION: INSIDE ON LASER COVER SHIELD)

Notice for Medical Use

The MP-6000MD is a Class 1 Medical Device.
The MP-6000MD has no protection against water ingress - IPX0 – Please ensure that you read all the Warnings & Precautions on Page 3.
The MP-6000MD is designed for continuous use.
The MP-6000MD contains no applied parts.

Warranty

Datavideo warrants that the equipment it manufactures shall be free from defects in material and workmanship for a period of 12 months from the date of product purchased. If equipment fails due to such defects, Datavideo will, at its option, repair or provide a replacement for the defective part or product. Equipment that fails after the warranty period, has been operated or installed in a manner other than that specified by Datavideo, or has been subjected to abuse or modification, will be repaired for time and material charges at the Buyer's expense.

This warranty does not affect your statutory rights within the Country of purchase.

Note: Datavideo except no responsibility for compensation for the loss of data that could not be recorded or played due to problems such as unit malfunction, corruption or loss of recorded data.

Disposal

For EU Customers only - WEEE Marking.

This symbol on the product indicates that it will not be treated as household waste. It must be handed over to the applicable take-back scheme for the recycling of electrical and electronic equipment within the Country of purchase. For more detailed information about the recycling of this product, please contact your local Datavideo office.

This unit must be returned to the manufacturer for servicing or recycling when;

- it has reached the end of its useful life and needs to be recycled
- the power cord or plug is frayed or damaged
- the unit does not operate normally, when the operating instructions are followed
- the unit has been dropped or the case has been damaged
- liquid has been spilled onto or into the unit
- the unit displays a distinctive change in performance indicating the need for servicing

Alternatively the unit shall be disposed of in accordance with national laws within the country of usage.

What's in the Package

The following is a packing list, if any items are missing from your box please contact your dealer immediately.

Item	Description	Q'ty
1	MP-6000MD unit	1
2	2 RCA to 2 RCA Cable	1
3	Y/C Cable s-plug to s-plug 1.2m	1
4	BNC to BNC 1.2m	3
5	IEEE 1394 6Pin to 4Pin Cable 1.8m	1
6	AC power cord	1
7	Instruction Manual	1

Introduction

The MP-6000MD is a DVD+R/RW drive based high quality digital audio and video recorder. It integrates a high performance MPEG-2 Codec for Real-Time Recording of live audio/video material from DV or Analogue camcorders, VCRs, Betacam VTRs or other a/v sources on to DVD+R/RW disc in real time. The created DVD discs can be played in most DVD players. It will also create index images automatically.

Symbols

Any sections marked with an exclamation mark should be read very carefully, they are safety guidelines and relate to the safe operation / servicing of this product.

The MP-6000MD is UL Classified. This symbol indicates compliance with both Canadian and U.S. requirements.

This symbol on the product indicates the Earth (Equipotential) Terminal, which ensures good grounding between various products.

Cleaning

To clean the unit, remove the power cord and use a soft dry or slightly damp cloth. Do not use liquid or aerosol cleaners. Use of alcohol, thinners, insecticides or other solvent based products may result in permanent damage to the casing.

Features

- Multi Format - DV, YUV, Y/C (S-Video) and Composite video inputs.
- IEEE-1394 6-pin FireWire (i.Link) input port with 12V bus power. Available in DV25 NTSC 4:1:1 / PAL 4:2:0 formats.
- YUV, Y/C, Composite video outputs with selectable NTSC/PAL video system.
- Features Video color processor control of Brightness, Color, Contrast, and Tint (Tint is NTSC only).
- Unbalanced (RCA) analog audio input and output for interconnection with professional digital audio equipment.
- RS-232 control interface for external remote thru PC or other devices.
- GPI (General Purpose Interface) for connecting an external foot switch or other trigger devices.
- Built in TBC
- Built in 3D noise filter
- Built in 3D Y/C separation filter/Comb filter (Composite and S-Video only)

Functions: Front Panel

Power On / Off

Fast Rewind Mode at 2X,4X,8X,16X,30X,60X,100X speed

Fast Forward Mode at 2X,4X,8X,16X,30X,60X,100X speed

Stop

Play a Title/Track

Record. Press and hold the REC button and press on the "

" button to start recording a clip.

Pause/Play a Title/Track

Press Title button, it will go to the track list of the disc. Press it again; it will go back to the video clip you were playing.

Jump to Previous track (Title)

“MENU” KEY has several different functions,

1. VIDEO INPUT:

Input Source Select of Composite Video, S-Video, YUV, Digital(DV25) Please note, system will take about 2-3 seconds to switch between video sources.

2. COLOR CORRECTION:

To adjust Brightness, Contrast, Color, and Tint (Tint is NTSC only)

3. GPI FUNCTION:

To set up GPI trigger modes, Record/Pause or Play/Pause with the setting in rear panel DIP SWITCH.

When GPI DIP SWITCH is set to OFF, there are two different functions

a. Press GPI TRIGGER BUTTON once, will start RECORDING. Press it again will PAUSE recording.

b. Press GPI TRIGGER BUTTON once, will start playback. Press it again will PAUSE playback.

When GPI DIP SWITCH is set to ON, there is only one function

a. Press and hold GPI TRIGGER BUTTON will start to RECORD. Release GPI TRIGGER BUTTON will PAUSE recording.

4. VIDEO STANDARD:

Select video output as NTSC 0, 7.5 IRE or PAL

5. RECORD QUALITY:

HQ, SP, LP, EP, SLP

6. SYSTEM SETUP:

a. Set time: Manually set up timing.

b. System info.: Check system information.

c. Factory Reset: Return all settings to Factory Default.

d. Quit:

7. MAKE COMPATIBLE: This function is similar to “FINALIZE”, but it only works when you insert a DVD+RW disc. The purpose is to make this disc more compatible for playback by other DVD players.

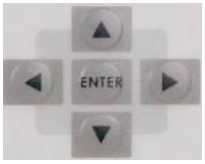
Erase Disc (DVD+RW only)

EJECT button. Press to Open/Close Disc Tray

Jump to Next track (Title)

Select the desired image as the Icon for the Title

Finalize a DVD+R Disc (DVD+RW does not need finalizing)



Move Cursor Up, Down, Left, Right

There are two functions of ENTER button.

1. ENTER button Confirms Selected Option.
2. Enable/Disable DV device control functions when input source is set to DV

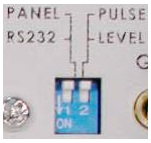
Functions: Rear Panel

DIP switch

DIP switch 1 OFF,

•External device control by GPI trigger.

DIP switch 1 ON **(When this function is turned on, the front panel and GPI function will be disabled. Only "EJECT" will work.)**



•External device control enabled (by RS-232)

DIP switch 2 OFF

•GPI function is set to Pulse Trigger.

DIP switch 2 ON

•GPI function is set to Level Trigger.

Note: Please make sure the unit is turned off before changes to DIP switch.

RS-232 Remote Control interface

• 9-pin serial port standard RS-232 interface

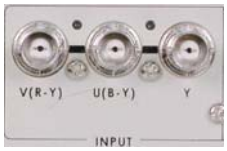
• With additional PC remote software to remote control MP-6000MD.

AC Power connector with 1 Amp Anti-Surge Fuse

Connect to a suitable AC outlet (100 – 240 Volt AC).

Black Burst output terminal for video monitoring

Component Y.U.V. Video output terminal.



Component Y.U.V. Video input terminal.

Composite Video & S-Video (Y/C) Input and Output

IEEE-1394 6-pin FireWire (i.Link) DV Input and loop thru output
Available in DV25 NTSC 4:1:1 or PAL 4:2:0 format
Note: This IEEE1394 interface does not take control commands or video signals from a PC / MAC.

Two channels Unbalanced L/R Audio input and Output

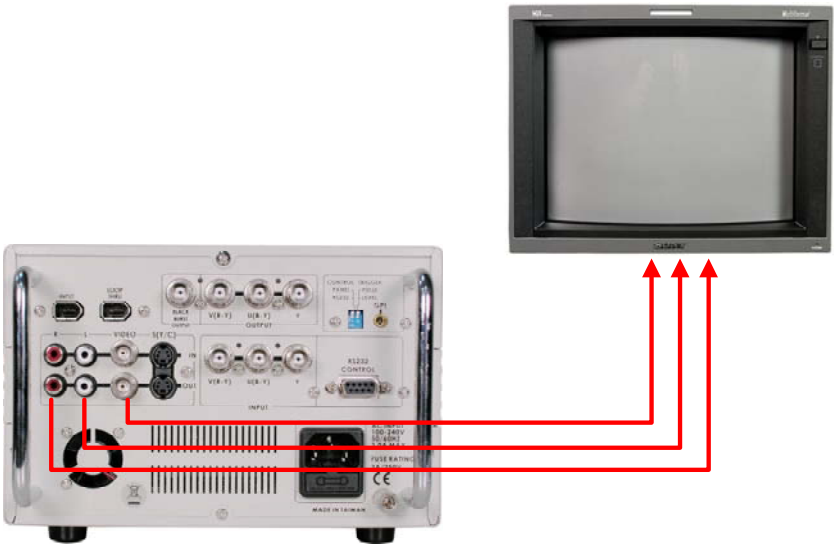
Cooling fan
Please ensure this is not blocked during operation.

Equipotential Terminal
When connecting this unit to any other component, make sure that it is properly grounded by connecting this terminal. When connecting, use the socket and be sure to use wire with a cross-sectional area of at least 1.0 mm2.

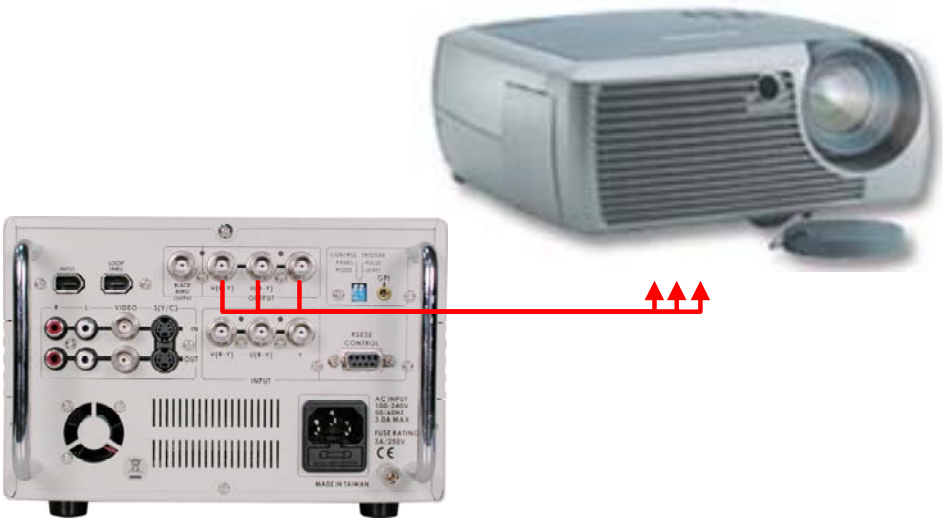
Installation

The following are simple examples of how to integrate the MP-6000MD into any video setup. Obviously there are too many possible combinations to cover them all in detail, but these examples cover the most frequently used input and output combinations.

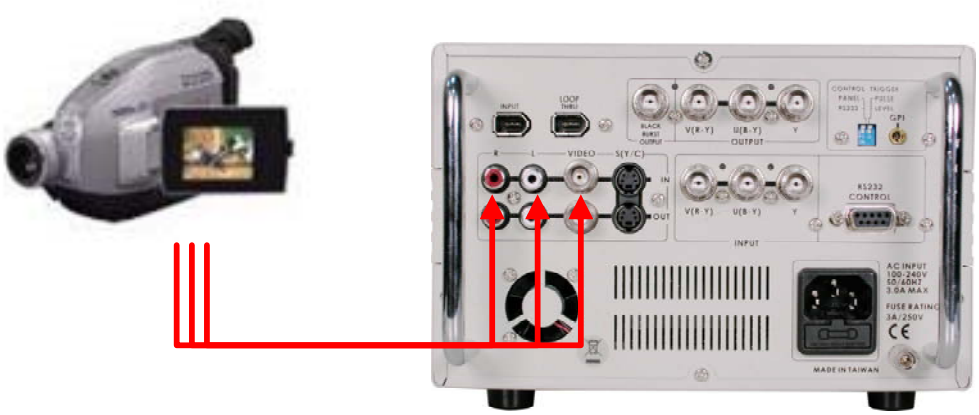
1. Connecting composite video and stereo audio outputs from the MP-6000MD to a TV set / monitor. Alternatively you may prefer to connect the audio outputs to an amplifier or speakers.



2. Connecting YUV output from the MP-6000MD to a Projector.



3. Connecting Y/C or Composite video and stereo audio outputs from an analogue camcorder or DVD player to the MP-6000MD.



4. Connecting a DV (IEEE1394) output from a DV camcorder or DV Deck to the MP-6000MD. With this connection you can also use DV device control from the MP-6000MD to cue up the tape.

Quick Start Guide:

As the heading suggests, this is the quick start section. If you require more detailed operating instructions please go to page 18.

Step 1: Turn on power to the MP-6000MD, the source and the monitor.

Step 2: Press the "POWER" button, to turn on the MP-6000MD. The word "MP-6000" and then "BOOT" will appear on the display window. After a couple seconds, it will present "NO Disc" that means the tray is empty. Please place a disc on the tray.

Note: The upper right window on the TV screen will show two lines of data. One is the status of the unit, the other one is the input format setting.

Step 3: Press the "EJECT" button once, the tray will come out, the word "OPEN" appears in the window. Please put the DVD+R or RW disc with the printing surface up, and then press the "EJECT" button again. The tray will return into the MP-6000MD.

Step 4: The word ' Reading ' appears on the screen, in the upper right corner; this means the MP-6000MD is reading the disc. If the disc contains previous recordings, it will be detected during the read process. If there is a recording present you can press the "PLAY" key and play out the program immediately.

Step 5: If it is a blank/brand-new disc, the MP-6000MD will start the formatting process immediately. A window will appear saying "FORMATTING." The entire process will take approximately 20 second.

Note: It's necessary to format the disc before you start recording.

Step 6: Find the "VIDEO INPUT" under the MENU button to choose the input signal source.

Step 7: Find the "VIDEO STANDARD" under the MENU button to choose the proper video standard, NTSC or PAL.

Step 8: Find the "RECORD QUALITY" under the MENU button to choose HQ / SP / LP / EP / SLP record quality. Once this is set you can start recording.

Step 9: Before you start to record, you can adjust video input source quality by using the color processor of the MP-6000MD.

a. Press the “MENU” button once, choose '”2.COLOR CORRECTION”, then press the “ENTER” button. Use the Up and Down arrow buttons to move to different categories.

- Brightness
- Contrast
- Color
- Tint (This function only works on composite and S-video input in NTSC standard.)

Note: The Color Processor only works on analogue input signals, such as composite, Y/C, or component. It does not work on a DV input signal.

b. Press the “ENTER” button again, and use the Left and Right arrow buttons to adjust the level.

- To confirm the changes, press the “ENTER” button again. Select “Save” and then “ENTER” to save the settings.
- To cancel the changes, select “Abort”
- To restore factory default settings, select “Default”

c. Press the “ENTER” button again, and it will return to the previous menu.

d. To adjust other categories, please repeat the above procedure.

Step 9: Press ' REC ' and ' PLAY ' at the same time, and the MP-6000MD will start recording. The “REC” symbol appears on the TV monitor to show that a recording is in progress and a second symbol indicates the type of disc being created “DVD+R” / “DVD+RW”.

Step 10: If you want to stop recording, press the “STOP” button. Note: Once “STOP” has been pressed the MP-6000MD will create a title/track. Any subsequent recordings will be created as new titles/tracks.

Step 11: Once the recording is complete, press the “STOP” button. (It takes a few seconds to stop the process. Depending on the time frame you have recorded in the disc.) Then, press the “PLAY” button, you can playback the video which you just recorded immediately.

Step 12: Change the title name. Before the disc is finalized, you can change the title name as you wish. Press the “TITLE” button, and then press “MENU”. Go to “1. EDIT TITLE NAME” and press “ENTER”. It will pop up a window on the TV screen. Then follow the screen display to change the name for that video clip.

Step 13: “FINALIZE” the disc: If want to playback recorded DVD+R disc in other DVD players, you have to finalize the disc first. Press the “FINALIZE” button, choose “CONFIRM” and press the “ENTER” button. A “Finalize” Progress Bar will appear on the TV monitor. When the bar disappears, the process is complete. The entire process takes approximately 1 minute.

Note: While finalizing the disc, all buttons on the front panel are inactive. Do not turn off the power, during finalization as disc damage may occur.

If unable to finalize the disc, press the "TITLE", "STOP", and then "FINALIZE'" buttons to finalize the disc.

Step 14: "ERASE" the disc: This function is only used in DVD+RW discs. It can not be used with DVD+R disc. DVD+RW disc can be recorded and erased repeatedly.

If there is any error and the recording needs to be erased, there are two different methods to do it.

a. **Erase the entire "Title" (Track) in DVD+RW disc.**

   Press "ERASE" button, the entire disc will be erased in about 20 second.

b. **Erase the last track in DVD+RW disc.**

   Press "TITLE" button, then press "MENU". Go to "2. ERASE LAST TITLE", and choose "CONFIRM". Then press "ENTER" button again.

You can follow this procedure to erase the previous track.

Note: If the DVD+RW disc has been closed (made compatible), you can only erase the entire disc, not the last track.

Setting Up

Connecting

Hopefully you have read the installation chapter, and you've studied the diagrams on pages 12 – 14. With your chosen source and a suitable monitor connected your ready to go.

Connect the power cord to the MP-6000MD AC Input Socket, and connect the other end to a suitable socket.

Powering Up

With your source and monitor connected you can now power up the MP-6000MD.

Lift the protective cover from the Power On button, press the button and close the protective cover.

The Power On button should now be illuminated.

On-Screen Display

The MP-6000MD displays configuration information in two areas: An on-screen display on the TV monitor and also on the LCD display.

The information on the TV monitor will most often appear in the top right hand corner of the screen. It is superimposed over the video image – it does not appear on the recording.

Line 1 indicates disc status. (Reading, No Disc, DVD+R etc)

Line 2 indicates Video Input.. (CVBS, SVIDEO,YUV, DV)

Line 3 indicates Record status (DVD-REC … etc)

LCD Display

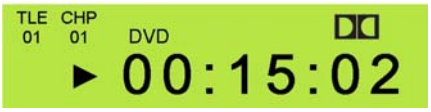
The LCD on the front panel of the MP-6000MD displays various forms of information. Here are some of the many examples

Displayed when first switched on.

Displayed briefly while the MP-6000MD is booting up.

Displayed when the Eject Button is pressed.

General display indicating the Record Quality selected and the active video input. In this example HQ is the Record Quality – other options are SP, LP, EP and SLP. The active video input is Composite Video – other options are S-VIDEO, Y U V and DIGITAL



Playback Display. This indicates the playback status such as PLAY, PAUSE, FWD etc. The Title Number (TLE) from 00-99, and the Chapter Number (CHP) from 00-99 are displayed as is the Dolby™ Indicator if Dolby™ Noise Reduction is present. The HH.MM.SS display indicates the position within the track or chapter.

Record Display. This indicates Record status. It displays the Record Quality, in this case HQ – other options are SP, LP, EP and SLP. It also indicates whether the MP-6000MD is in Rec or Rec Pause mode. The counter display in HH:MM:SS indicates the length of the track being recorded.

The Menu display is shown when the Menu Button is pressed. There are many options available, which we will examine in more detail later.

We will look at other LCD display information later on, in other chapters.

Setting the Time & Date

With the MP-6000MD powered up the LCD display should be displaying No Disc

Press the Menu Button.

The LCD Display should now show the Set Up Menu.

Press the Down Arrow button 5 times

The LCD Display should now show option 6 System Setup.

Press the Enter button.

The LCD Display should now read System Setup, and on the TV monitor the Setup options should be displayed.

LCD Display

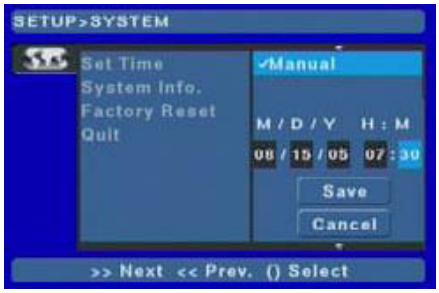
TV Monitor

Press the Right Arrow button to highlight Set Time.

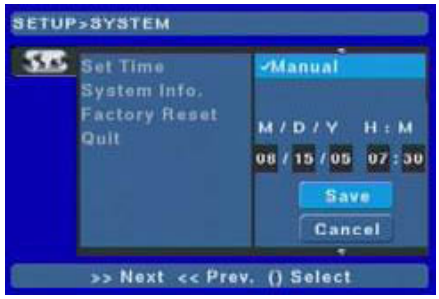
Press the Right Arrow button again to highlight Manual.

Press the Enter button to open the Time & Date settings

Use the Left and Right Arrow buttons to navigate the fields, and the Up and Down Arrow buttons to alter the values.



Once set correctly use the Left Arrow button to highlight Save and press the Enter button to close the Time & Date settings and save the values.



Press the Left Arrow button to highlight Set Time

Press the Down Arrow button 3 times, until Quit is highlighted.

Press the Right Arrow button to highlight OK

And now press the Enter button to exit Setup.

Finally press the Menu button to exit the Setup Menu and return to the General display.

Setting the Video Input

The MP-6000MD has four Video Input options; Composite Video, S-Video, Component Video (Y U V) and DV (DIGITAL) (IEEE 1394).

The selected option is displayed in three ways

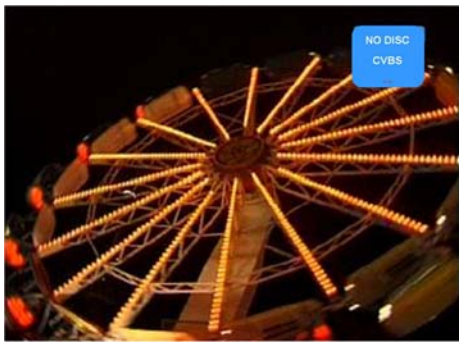
LCD Display	On-Screen Display
VIDEO = Composite Video	CVBS = Composite Video
S-VIDEO = S-VIDEO (Y/C)	SVIDEO = S-Video
Y U V = COMPONENT	YUV = Component Video
DIGITAL = DV25 (IEEE 1394)	DIGITAL = DV25 (IEEE 1394)

We will concentrate on the LCD display

Press the MENU button, and then go to the Video Input Options

Repeated presses of the Down Arrow button will switch from Composite Video, to S-Video, to Y U V (Component Video) and finally to DIGITAL (DV25).

Once you have selected the correct input, the video signal from your source should appear on the TV monitor.



Setting the Record Quality

The MP-6000MD has five Recording Quality options HQ, SP, LP, EP, SLP. The Selected option is displayed in two ways.

LCD Display

On-Screen for five seconds

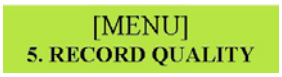
We will concentrate on the LCD Display

To change the Quality setting, press the menu button.

The LCD Display should show the Set Up Menu

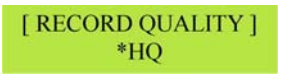
Now press the down arrow four times.

x 4 The LCD Display should now show the Record Quality setting



Press the menu button to call up the Record Quality options.

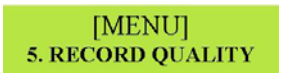
The LCD Display should look like this.



Press the down arrow button to select the record quality you require and then press the enter button

Then

The LCD display should look like this



Finally press the menu button to exit set up and return to general display

The LCD display should look like this – The selected record quality will be displayed (in this case HQ)

As you select each different Record Quality option you will notice that the on-screen display indicates how many minutes of record time are available at the selected quality, this information bar is displayed for five seconds.

The figures above are typical for an empty DVD+R disc.

Recording a Disc

With the Video Input selected and the Record Quality selected you are now ready to make a recording.

Inserting a Disc

It is most important that you handle DVD+R / RW discs with care. Do not touch the underside of the disc, fingerprints, smudges and scratches are likely to make the recording fail. Discs should be stored in a cool, dry place out of direct sunlight; they should not be exposed to extremes of temperature.

Formatting a New Disc

If you are using a brand new disc that has never been recorded previously, it must first of all be formatted. The MP-6000 MD will automatically format a new disc for you.

Press the Eject button, the message OPEN will be displayed on the LCD display, and the disc tray will open.

Place a new DVD+R / RW disc on the disc tray; label/printed side up.

Press the Eject button again, so that the tray retracts, and the CLOSE message appears.

After a few seconds the message will change to READING, and after a few more seconds it will return to the general display.

On the TV monitor you will see this message

After about 20 seconds the message will disappear, and the disc is ready to use.

DVD+R

Press the Eject button, the message OPEN will be displayed on the LCD display, and the disc tray will open.

Place a blank DVD+R disc on the disc tray; label/printed side up.

Press the Eject button again, so that the tray retracts, and the CLOSE message appears.

After a few seconds the message will change to READING, and after a few more seconds it will return to the general display.

DVD+RW

Press the Eject button, the message OPEN will be displayed on the LCD display, and the disc tray will open.

Place a DVD+RW disc on the disc tray; label/printed side up.

Press the Eject button again, so that the tray retracts, and the CLOSE message appears.

After a few seconds the message will change to READING, and after a few more seconds it will return to the general display.

If the disc has not been used previously, it must first of all be formatted.

On the TV monitor you will see this message

After about 20 seconds the message will disappear, and the disc is ready to use.

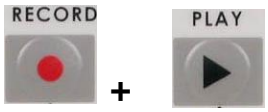
If the disc has been used previously it will not be necessary to format it, the MP-6000MD will check the disc and you can start recording immediately. If there are other tracks on the disc that you would like to erase please see the chapters, “Erasing a DVD+RW Disc” and “Erasing the Last Title from a DVD+RW Disc”.

Recording from an Analogue Source

If you are recording from a tape start the tape playing, the video image should appear on the TV monitor connected to the MP-6000MD output. If you are recording a live image from a camera you should be able to see the image from the camera on the TV monitor connected to the MP-6000MD output.

If necessary you can adjust the Brightness, Contrast, Color and Tint (Tint is NTSC only) of the video image, this is covered in the chapter “Color Correction”. We will first look at recording from an analogue video input (Composite Video, S-Video, Y U V); recording from DV is a little different, so we will look at that, in more detail in another chapter.

To start recording press and hold the Rec button, then while still holding it down press the Play button



The LCD should go to the Record Display and On-Screen there should be a Rec indicator, such as this:

LCD Display

On-Screen Indicator – In upper left corner of screen

To stop recording press, the Stop button.

The LCD will return to general display and the On-Screen display will show the Stop Message.

LCD Display

On-Screen Display

The first track of the disc is now completed. You can record more tracks by following the same routine; up to 99 tracks can be recorded on a disc.

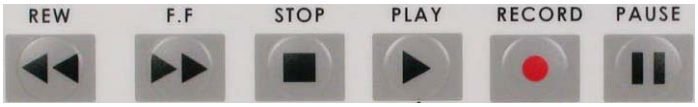
Recording from a DV IEEE1394 (Digital) Source

If you are recording from a DV tape, the MP-6000MD offers device control via the IEEE 1394 cable. With device control you can control Fast Forward, Rewind, Pause, Play, Picture Search Fwd / Rev and Stop Functions.

Select DIGITAL as the Video Input and press the Enter button (Also marked DV Cam Remote), you will see the Device Control options in the On-Screen display.

Select Digital | Press the Enter button | On-Screen Device Control

You can control the DV device by using the control buttons on the MP-6000MD (with the exception of Rec)



The On Screen Display will indicate the status of the DV Device:

Play | Pause | Stop | Pic Search Forward | Pic Search Reverse | Fast Forward | Rewind | No DV Device

Once you have found the scene on the tape that you want to record, press play to start the tape playing

To start recording press and hold the Rec button, then while still holding it down press the Play button

The LCD should go to the Record Display and On-Screen the Device Control display will be replaced by a Rec indicator, such as this:

LCD Display

On-Screen Indicator – In upper left corner of screen

To stop recording press, the Stop button.

The LCD will return to general display and the On-Screen display will show the Stop Message.

LCD Display

On-Screen Display

The first track of the disc is now completed. You can record more tracks by following the same routine; up to 99 tracks can be recorded on a disc.

Reviewing a Recording

Once you have recorded one or more tracks onto a disc, you can play the disc and review the recordings. Press the Title button to switch from Rec mode to playback mode.

The General Display should be replaced by the Playback Display.

On the TV Monitor you should see the Track List and details.

In the example above there are two tracks.

Each track has a data panel next to it which gives details of the Video Source, the date & time it was recorded, the length of the track in H:MM:SS and the Record Quality.

(The Title and the Icon can be edited, we will look at this in a later chapter “Editing a Title”.)

At the bottom of the list is another data panel which gives details of how much free space is left on the disc. It is displayed as a percentage of total time and in minutes for each Record Quality Setting.

To play a track, use the Up or Down Arrow button to highlight the track, and then press the Enter button.

OR THEN

Once the track has played you can choose to playback other tracks, by following the same procedure, or you can return to record mode to add more tracks, or you can finalize the disc so that it can be played back in ordinary DVD Players.

If you want to return to the Record Mode to add some more tracks, press the Stop button twice.

X 2

Finalizing a DVD+R Disc

Before a disc is finalized it is possible to edit the title details, if you want to do this see the chapter “Editing a Title”

To finalise a disc the LCD Display must be displaying the General Display. If the LCD is showing any other display press the Stop button,

until the General Display is showing.

Now press the Finalize button

The LCD Display will show the Finalise Menu

Use the Right Arrow button to highlight CONFIRM And then press the Enter button

The Finalize process will start. The LCD display will show the Finalize message, and the on-screen display will show a progress bar.

LCD

On Screen Display

The finalize process may take several minutes; you will see the progress bar becoming gradually more red from right to left.

Once the disc is finalized the progress bar will become completely red, and then disappear from the screen.

Finalize Completed

Once the disc has been finalized, press the Title button to display the Track List.

The Track List will appear on the TV monitor.

You will notice the data panel showing available space has disappeared from the bottom of the screen; this is because the disc is now finalized and therefore has no available space.

The disc can now be ejected and played in other DVD players or computers. Please note: Not all DVD players are compatible with DVD+R media, some older players may not recognise the disc.

Finalizing a DVD+RW Disc (Make Compatible)

Strictly speaking an RW disc doesn't get finalized, since it is always possible to erase and re-record. The finalizing process with a DVD+RW disc is called Make Compatible; it doesn't close the disc to future recordings, but it does make it compatible with other DVD players and computers.

Please note: DVD+RW discs must be treated with great care, finger prints or scratches on the recordable surface will reduce the number of times a disc can be re-recorded, and may result in record errors or lock-ups.

To finalise a disc the LCD Display must be displaying the General Display. If the LCD is showing any other display press the Stop button,

until the General Display is showing.

Press the Menu button and the LCD display will show the Menu Options

Press the Down Arrow button to navigate the Menu Options, until 5. Make Compatible is displayed.

Press the Enter Button and the Make Compatible progress bar will appear on the TV monitor.

Once the process is complete the Make Compatible progress bar will disappear from the TV monitor, press the Menu button to exit the Menu Options and return to the General Display.

The disc is now ready to be played in other devices, such as PCs or DVD players. Please note: Not all DVD players are compatible with DVD+RW media, some older players may not recognise the disc.

Editing a Title

It is possible to edit the Title Description and the Icon of each Title. This can only be done before the disc has been finalized; once finalized a DVD+R disc cannot be modified.

Editing a Title Description

Start with the LCD display showing the General Display

Press the Title button to switch from General Display to playback mode.

The General Display should be replaced by the Playback Display.

On the TV Monitor you should see the Track List and details.

In the example above there are two tracks.

In this example we are going to modify the description of the second track.

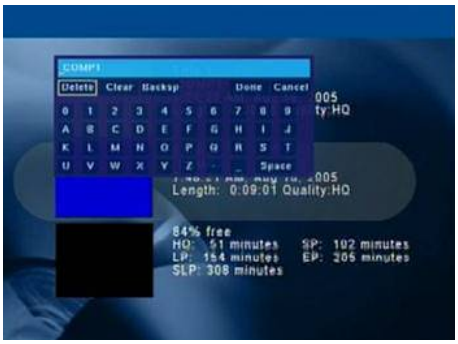
Use the Down Arrow button to highlight the second track.

With the second track highlighted press the Menu button

The LCD Display will show the Edit Title Name option

Press the Enter button

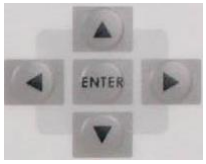
On the TV monitor the Title Editing Panel will appear

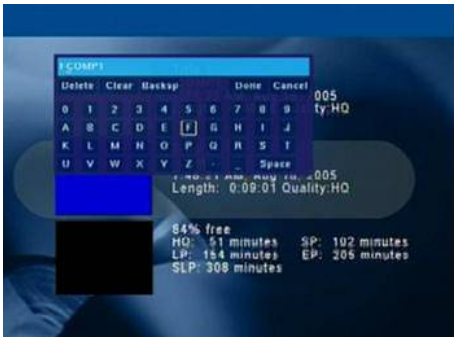

COMP1
Delete Clear Backsp Done Cancel
0 1 2 3 4 5 6 7 8 9
A B C D E F G H I J
K L M N O P Q R S T
U V W X Y Z . _ Space
005
ty:HQ
Length: 0:09:01 Quality:HQ
84% free
HQ: 51 minutes SP: 102 minutes
LP: 154 minutes EP: 205 minutes
SLP: 308 minutes

Use the Up, Down, Left and Right Arrow buttons to highlight the required letter and press the Enter button. The description can be up to 15 characters.

In this example we are calling the track FAIRGROUND, so the first letter is F.

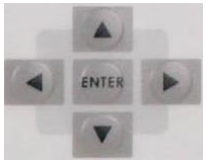
Use the Up, Down, Left and Right Arrow buttons to highlight the required letter.





Press the Enter button to accept the character and move on to the next selection

Once the description is complete use the Up, Down, Left and Right Arrow buttons to highlight Done



Press the Enter button to confirm. The screen will go black for a few seconds, while the Track List is updated

After a few seconds the updated Track List will appear with the new description in place.

Press the Menu button to exit the Edit Title mode and return to the Playback Display

Editing a Title Icon

Now using the same example we will change the Icon of the second track.

Start with the LCD Display showing the Playback Display, and the TV monitor showing the Track List

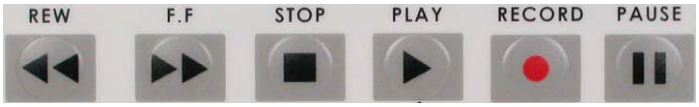
LCD Display

TV Monitor

Press the Down Arrow button to highlight Track 2

Press the Enter button and the track will start to play

Use the Control Buttons to find the image you would like to use as the Icon. You can use picture search forward \ reverse, play, pause etc.



Once you have found the image press the Icon button. The message Change Thumbnail will appear on the TV monitor

The screen will go black for a few seconds while the Track List is updated

Then the updated Track List will be displayed

Once you have updated the Title Descriptions and Icons the disc can be finalized as normal.

Color Correction

If the image from the video source is in need of adjustment the MP-6000MD has a built in video processor, it can adjust the Brightness, Contrast, Color Saturation and Tint (Tint is NTSC only). These settings are only available with analogue video signals, YUV, S-Video and Composite Video.

To call up the Video Processor Settings start with the LCD display on General Display. Have your video source playing, so that you can see the image on the TV monitor

Press the Menu button to bring up the Color Correction menu

Press the Enter button and the display will change to the Brightness setting

To adjust the Brightness press the Enter button again. The LCD display will change and the Brightness adjustment will appear on the TV monitor.

LCD Display

On-Screen Adjustment

Use the Left and Right Arrow buttons to adjust the Brightness – Left reduces the brightness and Right increase the brightness

A reduced value

An increased value

Once the setting is correct press the Enter button

The LCD Display will change

SAVE should be flashing, press the Enter button and the new value is saved. If SAVE is not flashing use the Left Arrow button to highlight SAVE so that it is flashing, and then press the Enter button

Press the Enter button to save the new value. Once saved the Menu will return to 1.Brightness

To access other options press the Down Arrow button to select Contrast, Color and Tint (Tint is NTSC only)

[COLOR CORRECTION]
2. CONTRAST

[COLOR CORRECTION]
3. COLOR

[COLOR CORRECTION]
4. TINT

The procedure for setting Contrast, Color and Tint (NTSC only) is the same as for Brightness.

Once all the adjustments are correct, press the Menu button to exit the Color Correction menu and return to the General Display

[COLOR CORRECTION]
2. CONTRAST

HQ
VIDEO

These color correction settings will be stored as your default settings for the unit.
If you wish to return to the factory default at any point, follow the above procedure but highlight DEFAULT and press the Enter button, then highlight SAVE and press the Enter button again.

Setting the Video Standard (PAL/NTSC)

The MP-6000MD can be set to PAL or NTSC. Generally if the unit is bought it Europe it will be set to PAL as a default, whereas if it is bought in the U.S. or ASIA it will be set to NTSC as a default.

If you want to switch from one standard to another here's what to do.

Start with the MP-6000MD LCD display showing the General Display.

Press the Menu button to call up the Menu options

Press the Down Arrow button twice to call up 3.Video Standard

Press the Enter button to call up the Video Standard options

Use the Up or Down Arrow buttons to select the video standard you want to use.

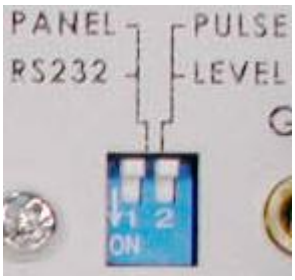
Once your chosen video standard is displayed, press the Menu button to save and exit.

Note: NTSC "0 IRE" is used in Japan, NTSC "7.5 IRE" is used in other NTSC countries such as the U.S., Canada etc.

GPI Function

The MP-6000MD has a simple GPI (General Purpose Interface) function that allows hard wired control of either Record & Pause or Play & Pause. GPI works on either momentary contact closure, or maintained closure, so it is very easy to make a simple control cable with a 3.5mm stereo jack plug at one end and a switch or button of your choice at the other. The Dip Switches on the rear panel of the MP-6000MD determine the type of GPI remote control. If Dip Switch 2 is Off (up) the GPI is momentary closure (also known as pulse), this means that one press of the button will start the recording, and the next press will pause the recording. If Dip Switch 2 is On (down) the GPI becomes maintained closure (also known as level), this means the MP-6000MD will record while the button is held down, and will pause as soon as the button is released.

Dip Switch 1 switches the MP-6000MD between simple GPI control and RS 232 control. If Dip Switch 1 is Off (up) the MP-6000MD responds to GPI, if it is On (down) then it responds to RS 232. The Front Panel and the GPI interface will be deactivated if RS 232 control is selected. (Only the “EJECT” button will work.)



Dip Switches

DIP switch
DIP switch 1 OFF (up),
• GPI trigger is enabled.

DIP switch 1 ON **(When this function is turned on, the front panel and GPI function will be disabled. Only “EJECT” will work.)**
•External RS 232 device control enabled.

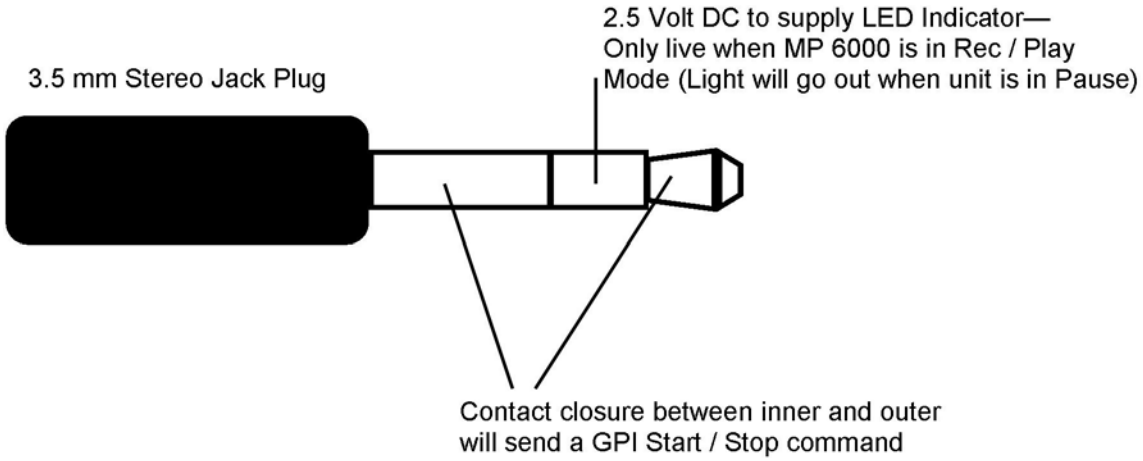
GPI Port

DIP switch 2 OFF (up)
•GPI function is set to momentary closure (Pulse Trigger).

DIP switch 2 ON
•GPI function is set to maintained closure (Level Trigger).

Note: Please make sure the MP 6000 is turned off before changing DIP switch settings.

The 3.5mm Stereo Jack Plug should be wired for contact closure between the inner pin and outer pin. The middle of the three contacts supplies a voltage which can be used to light an LED as an indication that the MP-6000MD is recording.


3.5 mm Stereo Jack Plug
2.5 Volt DC to supply LED Indicator—
Only live when MP 6000 is in Rec / Play
Mode (Light will go out when unit is in Pause)
Contact closure between inner and outer
will send a GPI Start / Stop command

The GPI Function can be set to either control Play & Pause or Record & Pause.

To select the GPI Function you require, start with the LCD Display showing the General Display

Press the Menu button to call up the Menu Options

Use the Down Arrow button to navigate to 3. GPI Function

Press the Enter button to enter the GPI Function menu

Use the Down Arrow button to select either Record/Pause or Play/Pause

Once you have highlighted the required mode, press the Menu button to save and exit.

Once set, the setting will remain as the default setting.

Additional Features of DVD+RW Discs

There are a few extra features that are only available with DVD+RW (Re-writable).

Formatting a New DVD+RW Disc

If you are using a brand new DVD+RW disc that has never been recorded previously, it must first of all be formatted. The MP-6000 MD will do this automatically

Press the Eject button, the message OPEN will be displayed on the LCD display, and the disc tray will open.

Place a DVD+RW disc on the disc tray; label/printed side up.

Press the Eject button again, so that the tray retracts, and the CLOSE message appears.

After a few seconds the message will change to READING, and after a few more seconds it will return to the general display.

On the TV monitor you will see this message

After about 20 seconds the message will disappear and the disc is ready to use.

Erasing a DVD+RW Disc

If you have an old DVD+RW Disc that you want to re-record as a new disc, i.e. you wish to remove all previously recorded tracks and data from the disc, follow this procedure.

Press the Eject button, the message OPEN will be displayed on the LCD display, and the disc tray will open.

Place a DVD+RW disc on the disc tray; label/printed side up.

Press the Eject button again, so that the tray retracts, and the CLOSE message appears.

After a few seconds the message will change to READING, and after a few more seconds it will return to the general display.

Press the Erase button and the Erase menu will appear.

Press the Right Arrow button to highlight CONFIRM

Press the Enter button to confirm and the LCD Display will show the ERASE message

On the TV monitor the Erase Progress bar will appear and after a few seconds will disappear

Once erase has been completed the LCD Display will return to the General Display

The disc is now empty and ready for re-recording.

Erasing the Last Title from a DVD+RW Disc

With a DVD+RW disc it is possible to remove the last recorded title from the disc without erasing the whole disc.

Insert the disc and wait for the General Display to appear on the LCD display.

Press the Title button to view the Track List. The LCD display will show the Playback Display and the Track List will appear on the TV monitor

In this example there are eight tracks recorded on the disc. Press the Down Arrow button to scroll down through the titles.

At the bottom of the list we can see there is 88% of free space available on the disc, and above that we can see title eight.

Press the Menu button to call up the Edit menu on the LCD display

[MENU]
1. EDIT TITLE NAME

Press the Down Arrow Button to call up Erase Last Track

[MENU]
2. ERASE LAST TITLE

Press the Enter button to call up the Erase Confirmation Screen

[ERASE LAST TITLE]
CANCEL CONFIRM

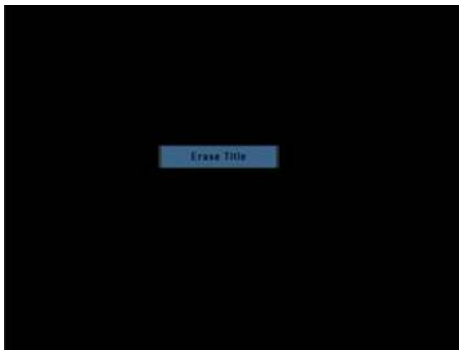
Press the Right Arrow button to highlight CONFIRM

[ERASE LAST TITLE]
CANCEL CONFIRM

Press the Enter button to Erase the track. The LCD Display will return to the Erase Last Track display.

[MENU]
2. ERASE LAST TITLE

The TV monitor will go black for a few seconds while the Track List is being updated.



Once completed you will see that eight has been removed and the free space on the disc has increased. You can remove further tracks by following the same procedure.

Once completed, press the Menu button to return to the Playback Display

Factory Reset (Return to default)

The MP-6000MD can be reset to original, default, factory settings by following this procedure.

Start from the General Display

Press the Menu button to call up the menu options

Use the Down Arrow button to navigate to 4.System Setup

Press the Enter button to enter System Setup

The System Setup Menu will appear on the TV monitor

Press the Right Arrow button to highlight set time

Now use the Down Arrow button to navigate down to Factory Reset

Press the Right Arrow button to highlight Start

Press the Enter button to confirm

Press the Left Arrow button to highlight Yes

Press the Enter button to confirm

After a few seconds the MP-6000MD will re-boot itself. Once re-booted you will see the “Set Date & Time” menu on the TV monitor.

Use the Up, Down Left and Right Arrow buttons to navigate and set the date and time

Then use the Right Arrow button to highlight save, and press the Enter button to confirm. The screen will go black for a few seconds and then the MP-6000MD is ready to go.

RS 232 Information

The MP-6000MD can be fully controlled via RS 232. The RS 232 port situated on the rear of the MP-6000MD uses standard RS 232 wiring. Full information on the control protocol is available from your local Datavideo office. Please read the chapter on GPI functions, as this will guide you regarding which Dip switch settings to use.

Specifications

Selectable Video Standards

NTSC/PAL

DV Input

Two 6-PIN IEEE1394 Fire Wire Ports with DC12V Bus Power supported

Supports DV25, NTSC 4:1:1, PAL 4:2:0

Analog Video Input/Output

Composite (CVBS): 1.0 Vp-p 75 ohm BNC.

S-Video(Y/C): 4-pin 75 ohm DIN Plug
Y: 1Vpp, 75 ohm
C: 0.286Vpp, 75 ohm

Component YUV: Betacam standard,

Y, Cr, Cb 75 ohm BNC
Black Burst Output: 75 ohm BNC connector.

Analog audio

Unbalanced Audio L/R in & Out RCA Ch1/2

Level: 6 Vp-p

Bandwidth: 20HZ ~ 20KHZ

S/N Ratio: >55 dB, THD: <0.3%

Device Control

D-SUB 9-pin (female) RS-232A interface Supports remote control front panel function.

Dimensions / Weight

8" x 9.8" x 5.2"

203 mm x 249 mm x 132 mm

Weight 8 lbs / 3.6kg

Temperature Range
Storage: -40°C to +75°C
Operating: -10°C to +50°C

Power Input

AC 100-240Volt 2.1 A

Water Resistance Rating

IPX0 – Do not use in or near liquid (See Warnings & Precautions on Page 3)

Supports Disc.

Disc types	Playback	Recording
DVD+RW	●	●
DVD+R	●	●
DVD-R	●	–
DVD-RW, video mode	●	–
DVD-Video	●	–
Super VCD	●	–
Audio CD	●	–
CD-R	●	–
CD-RW	●	–

DVD+R/RW Disc Format

Capacity	4.7Gbyte (12cm single-sided)		
Recording time	HQ	60'	9.72Mbit/s
	SP	120'	5.07Mbit/s
	LP	180'	3.38Mbit/s
	EP	240'	2.54Mbit/s
	SLP	360'	1.69Mbit/s

Video Format

Digital Compression DVD,SVCD: MPEG2
VCD: MPEG1

DVD-VIDEO DVD+R/RW HQ/SP)	50Hz	60Hz
Horiz Resolution	720 pixels'	720 pixels'
Vertical Resolution	576 lines	480 lines
DVD+RW (LP/EP)	50Hz	60Hz
Horiz Resolution	360 pixels'	360 pixels'
Vertical Resolution	576 lines	480 lines
VCD	50Hz	60Hz
Horiz Resolution	352 pixels'	352 pixels'
Vertical Resolution	288 lines	240 lines
1. equivalent to 500 lines on your TV		
2. equivalent to 250 lines on your TV		

Audio Performance

DA Converter 24 bit
AD Converter 16 bit

DVD	f_S 96 kHz	4 Hz – 44kHz
	f_S 48 kHz	4 Hz – 44kHz
Video CD	f_S 44.1 kHz	4 Hz – 44kHz

Service and Support

It is our goal to make your products ownership a satisfying experience. Our support team is available to assist you in setting up and operating your system. Please refer to our web site www.datavideo-tek.com for answers to common questions, support requests or contact your local office below.

Datavideo Corporation (USA)
7048 Elmer Ave., Whittier, CA 90602 USA
Tel: +1 562 696 2324 contactus@datavideo.us www.datavideo.us

Datavideo Technologies Europe BV
Californiedreef 26 3565 BL Utrecht, The Netherlands
Tel: +31 30 261 9656 info@datavideo.nl www.datavideo.info

Datavideo UK Limited
Unit 2 Waterside Business Park, Hadfield, Glossop, Derbyshire SK131BE UK
Tel: +44 1457 851000 sales@datavideo.co.uk www.datavideo.info

Datavideo Technologies Co., Ltd.
10F, 176 Jian-Yi Rd, Chung Ho City, Taipei Hsien, Taiwan 235
Tel: +886 2 8227 2888 info@datavideo.com.tw www.datavideo.com.tw

Datavideo Technologies China Co.
2F-D, 2 Lane 777, West Guangzhong Rd, Zhabei District, Shanghai, China
Tel: +86 21 5603 6599 service@datavideo.cn www.datavideo.cn

Datavideo Technologies (S) PTE Ltd.
No. 100, Lorong 23 Geylong, #01-03 D'Centennial Bldg, Singapore 388398
Tel: +65 6749 6866 info@datavideo.sg www.datavideo.info

All the trademarks are the properties of their respective owners.

Datavideo Technologies Co., Ltd. All rights reserved 2005.

P/N: 082060385E1